

CLAIMS LISTING

1. (Currently Amended) An assembly for conducting an electronic signal, the assembly
2 comprising:
3 a substrate having first and second surfaces;
4 first and second through-holes within the substrate, each through-hole having a first
5 opening at the first surface and a second opening at the second surface;
6 having distinct first and second regions to enable connection to first and second circuit
7 boards, respectively, the first and second regions including respective first and second
8 through-holes formed in the substrate; and
9 a first conductive element disposed within the first through-hole and extending from the
10 first surface to the second surface to form a first conductive via;
11 a second conductive element within the second through-hole and extending from the first
12 surface to the second surface to form a second conductive via;
13 a first an electronic cable having a first and second ends, the first end of the electronic
14 cable being inserted into the first end of the first through-hole and in electrical contact
15 with the first conductive via, disposed within the first through-hole and extending out
16 of the first through hole, adjacent the substrate and into the second through-hole.
1. 2. (Currently Amended) The assembly of claim 1 wherein the first-second end of the
2 electronic cable comprises first and second ends disposed in the first and second through-
3 holes, respectively-is inserted into the first end of the second through-hole and in electrical
4 contact with the second conductive via.
1. 3. (Withdrawn) The assembly of claim 2 further comprising a first conductive plating

2 disposed about an interior surface of the substrate that defines the first through-hole and a
3 second conductive plating disposed about an interior surface of the substrate that defines
4 the second through-hole, and wherein the first electronic cable includes a first conductor
5 having a first end disposed in electrical contact with the first conductive plating and a
6 second end disposed in electrical contact with the second conductive plating.

1 4. (Withdrawn) The assembly of claim 3 wherein the first conductor is soldered to the first
2 conductive plating.

1 5. (Withdrawn) The assembly of claim 3 wherein the first through-hole is filled with
2 conductive material.

1 6. (Withdrawn) The assembly of claim 3 wherein the first through-hole is adapted to
2 receive a conductive pin that extends from a circuit board connector of the first circuit
3 board.

1 7. (Withdrawn) The assembly of claim 3 further comprising a conductive pin secured
2 within the first through-hole and projecting out of the first through-hole to enable
3 connection with a female connector of the first circuit board.

1 8. (Withdrawn) The assembly of claim 7 wherein the first and second-through holes
2 extend between first and second parallel surfaces of the substrate, the conductive pin
3 projecting out of the first through-hole at the first surface, and the first end of the electronic
4 cable entering the first-through hole at the second surface.

1 9. (Withdrawn) The assembly of claim 1 wherein the electronic cable comprises a coaxial

2 cable having a center conductor and having an outer conductor disposed concentrically
3 about the center conductor.

1 10. (Withdrawn) The assembly of claim 1 wherein the first electronic cable comprises:
2 a pair of wires that extend parallel to one another along the length of the first electronic
3 cable;
4 an insulating material disposed about the pair of wires; and
5 a conductive shield disposed about the insulator.

1 11. (Withdrawn) The assembly of claim 1 wherein the first electronic cable comprises a
2 twisted pair of insulated wires.

1 12. (Withdrawn) The assembly of claim 2 wherein the first and second regions each include
2 a plurality of other through-holes, and wherein the assembly further comprises a plurality
3 of other electronic cables extending from the first region to the second region, each of the
4 plurality of other electronic cables having a first end disposed in a respective one of the
5 other through-holes in the first region and a second end disposed in a respective one of the
6 other through-holes in the second region.

1 13. (Withdrawn) The assembly of claim 11 wherein each of the plurality of other electronic
2 cables comprises a coaxial cable.

1 14. (Withdrawn) The assembly of claim 11 wherein each of the plurality of other electronic
2 cables comprises a pair of wires disposed within an insulator and a shield disposed about
3 the insulator.

1 15. (Withdrawn) The assembly of claim 11 wherein each of the plurality of other electronic
2 cables comprises a twisted pair of insulated wires.

1 16. (Withdrawn) The assembly of claim 1 wherein the first and second regions are disposed
2 on a first planar surface of the substrate, and wherein the first electronic cable includes a
3 first conductor that extends through the first through-hole to the first planar surface of the
4 substrate.

1 17. (Withdrawn) The assembly of claim 16 wherein the first conductor comprises a first end
2 disposed parallel to the first planar surface to receive a mating contact that extends from a
3 circuit board connector of the first circuit board.

1 18. (Withdrawn) The assembly of claim 17 wherein the first conductor extends through the
2 second through-hole and comprises a second end disposed parallel to the first planar
3 surface to receive a mating contact that extends from a circuit board connector of the
4 second circuit board.

1 19. (Withdrawn) The assembly of claim 17 wherein the first electronic cable further
2 includes a second conductor that extends through the first through-hole to the first planar
3 surface of the substrate, the second conductor having a second end disposed parallel to the
4 first flat end.

1 20. (Withdrawn) The assembly of claim 17 wherein the first end is disposed substantially
2 flush with the first planar surface.

1 21. (Withdrawn) The assembly of claim 17 wherein the first end has a substantially flat
2 surface that is perpendicular to an axis of extension of the first conductor.

1 22. (Withdrawn) The assembly of claim 17 further comprising a dielectric disposed over the
2 first end of the first conductor to establish a capacitive coupling between the first conductor
3 and the mating contact that extends from the circuit board connector.

1 23. (Withdrawn) The assembly of claim 22 wherein the dielectric has a thickness and
2 dielectric constant selected to achieve a desired capacitance between the first conductor and
3 the mating contact that extends from the circuit board connector.

1 24. (Withdrawn) The assembly of claim 1 wherein the first and second regions are disposed
2 on a first planar surface of the substrate, and wherein the first electronic cable includes a
3 first conductor that extends within the first through-hole to a selected depth relative to the
4 first planar surface.

1 25. (Withdrawn) The assembly of claim 1 wherein the first and second regions are disposed
2 on a first planar surface of the substrate, and wherein the first electronic cable includes a
3 first conductor that extends within the first through-hole and has a substantially flat end
4 recessed relative to the first planar surface to receive a mating contact that extends into the
5 first through-hole.

1 26. (Withdrawn) The assembly of claim 1 wherein the first and second regions are disposed

2 on a first planar surface of the substrate, and wherein the first electronic cable includes a
3 first conductor that extends through the first through-hole and projects out of the first
4 through-hole at a first end, the first end being substantially flat end to receive a mating
5 contact of a circuit board connector of the first circuit board.

1 27. (Withdrawn) The assembly of claim 1 wherein the substrate has conductive traces
2 disposed thereon.

1 28. (Withdrawn) The assembly of claim 27 wherein the substrate comprises a plurality of
2 layers including a first layer having an interior surface disposed in contact with an interior
3 surface of another of the layers, and wherein at least a portion of the plurality of conductive
4 traces are disposed on the interior surface of the first layer.

1 29. (Withdrawn) The assembly of claim 1 wherein the substrate comprises first, second and
2 third component substrates, the first component substrate having first and second openings
3 that define the first and second regions, respectively, and the second and third component
4 substrates being disposed in the first and second openings, respectively, the first through-
5 hole being disposed in the second component substrate and the second through-hole being
6 disposed in the third component substrate.

1 Claims 30-83 (Cancelled)

1 84. (New) The assembly of claim 1 wherein the first electronic cable is selected from among
2 a group of cables consisting of single conductor cables and dual-conductor cables, and
3 combinations thereof.

1 85. (New) The assembly of claim 84 wherein a dual conductor cable is selected from among
2 a group of dual-conductor cables consisting of twin-axial cables, coaxial cables, twisted
3 pair cables, and combinations thereof.

1 86. (New) The assembly of claim 1 wherein the first end of the first electronic cable is
2 electrically coupled to the first via proximate the first opening of the first through-hole to
3 mitigate signal reflection.

1 87. (New) The assembly of claim 85 wherein the dual conductor cable comprises first and
2 second conductors that are equal in length from respective first ends to respective second
3 ends.

1 88. (New) The assembly of claim 87 wherein the first ends of the first and second conductors
2 of the dual conductor cable are cut perpendicular to their respective lengths.

1 89. (New) The assembly of claim 1 wherein the substrate comprises a plurality of layers.

1 90. (New) The assembly of claim 1 wherein the substrate comprises at least one conductive
2 trace.

1 91. (New) The assembly of claim 90 wherein said at least one conductive trace includes a
2 conductive trace coupled to ground potential.

1 92. (New) The assembly of claim 90 wherein said at least one conductive trace includes a
2 conductive trace coupled to a source voltage.

1 93. (New) The assembly of claim 1 wherein the first cable end is secured within the first
2 conductive via by a securing engagement selected from among a plurality of securing
3 engagements consisting of solder, press fitted ends, frictionally secured ends, retaining
4 hardware, and combinations thereof.

1 94. (New) An assembly comprising:
1 a substrate having first and second surfaces;
2 first and second through-holes within the substrate, each through-hole having a first
3 opening at the first surface and a second opening at the second surface;
4
5 a first conductive element disposed within the first through-hole and extending from the
6 first surface to the second surface to form a first conductive via;
7 a second conductive element within the second through-hole and extending from the first
8 surface to the second surface to form a second conductive via;
9 an electronic cable having a first and second ends, the first end of the electronic cable being
10 inserted into the first end of the first through-hole and in electrical contact with the
11 first conductive via, and the second end of the electronic cable inserted into the first
12 end of the second through-hole and in electrical contact with the second conductive
13 via;
14 a first electronic member coupled to the first conductive via; and

15 a second electronic member coupled to the second electronic via.

1 95. (New) The assembly of claim 94 wherein the first electronic member comprises a first
2 daughter board having a conductive path conductively coupled to the first conductive via.

1 96. (New) The assembly of claim 95 further comprising a conductive pin having first and
2 second ends, the first end of the conductive pin sized to fit into the second end of the first
3 through-hole, and configured to electrically engage the first conductive via, and the second
4 end of the pin conductively coupled to the first conductive path.

1 97. (New) The assembly of claim 96 wherein the daughter board further comprises a
2 conductive engagement member for mechanically and electrically coupling the first
3 conductive path to the conductive pin, the conductive engagement member having a distal
4 end coupled to the first conductive path, and a proximal end having a mechanical capture to
5 releasably engage to the second end of the conductive pin.

1 98. (New) The assembly of claim 94 further comprising an edge connector with parallel first
2 and second sides, the edge connector being secured to the substrate, wherein the daughter
3 board is fixably secured between the parallel first and second sides of the edge connector.